doi:10.17596/0003467

Shinsei-maru+ "Cruise Report"
KS-23-J03C/J04

Real-time ocean bottom crustal movement observation

Kumano-nada
Off Kii Channel
Off Hatsushima Sagami bay

Feb.24th, 2023 - Mar.22th, 2023

Ocean Floor Observatory Technology Development Group
R&D Center for Earthquake and Tsunami
Research Institute for Marine Geodynamics
Japan Agency for Marine-Earth Science and Technology

Contents

1. Cruise Information 3

2. Research Proposal and Science Party 3

3. Activity and Results 4

4. Dive Log 6

5. Notice on Using 23

1. Cruise Information

Cruise ID:	KS-22-J03C/J04		
Name of vessel:	Shinsei-maru		
Title of cruise:	Maintenance of DONET Real time ocean bottom crustal movement observation		
Chief Scientist [Affiliation]:	Shuhei Nishida [JAMSTEC] Feb.24th, - Mar.22th		
Boarding Scientist, Affiliation, Boarding Period	Takeshi Katayama	JAMSTEC	Feb.24th, - Mar.13th
	Takashi Yokobiki	JAMSTEC	Feb.24th, - Mar.3rd
	Satoru Baba	JAMSTEC	Feb.24th, - Mar.3rd
	Hiroyuki Matsumoto	JAMSTEC	Mar.14th, - Mar.25th
	Morifumi Takaesu	NME	Feb.24th, - Mar.18th
	Yosuke Kawamura	NME	Feb.24th, - Mar.18th
	Masayuki Toizumi	NME	Feb.24th, - Mar.13th
	Toshimasa Nasu	NME	Mar.14th, - Mar.22th
	Yuki Ohwatari	NME	Mar.18th, - Mar.22th
	Haruki Doi	NME	Mar.18th, - Mar.22th
Cruise period:	Feb.24th, 2023 - Mar.22th, 2023		
Ports of departure / arrival:	JAMSTEC Yokosuka HQ / JAMSTEC Yokosuka HQ		
Research area:	Sagami bay Kumano-nada off Kii Cahnnel		

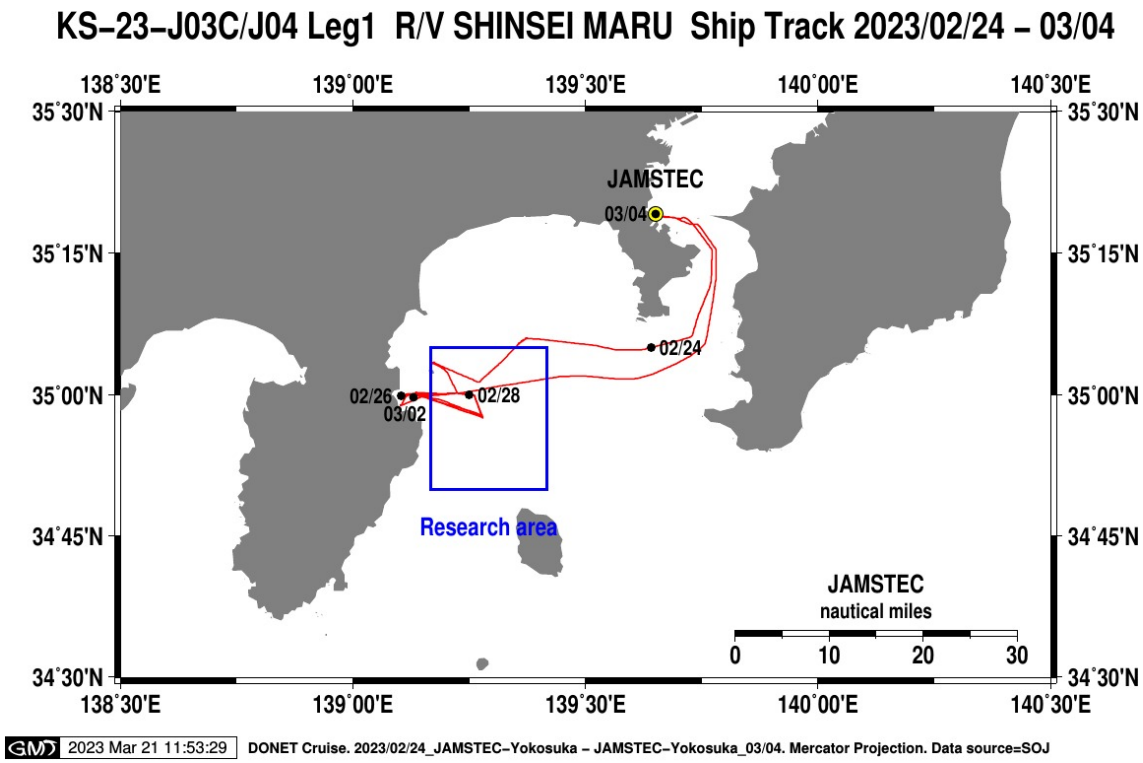
2. Research Proposal and Science Party

Title of proposal 1:	Real time ocean bottom crustal movement observation	
Science Party List:	Eiichiro Araki	JAMSTEC
	Takashi Yokobiki	JAMSTEC
	Hiroyuki Matsumoto	JAMSTEC
	Shuhei Nishida	JAMSTEC
	Yuya Machida	JAMSTEC
	Shuhei Tsuji	JAMSTEC
	Satoru Baba	JAMSTEC
	Takane Hori	JAMSTEC
	Shuichi Kodaira	JAMSTEC
	Shojiro Ishibasi	JAMSTEC
	Koichiro Obana	JAMSTEC
	Yuko Sugioka	Kobe Univ.
	Ryota Hino	Tohoku Univ.
	Yusaku Ohta	Tohoku Univ.
	Makiko Sato	Tohoku Univ.

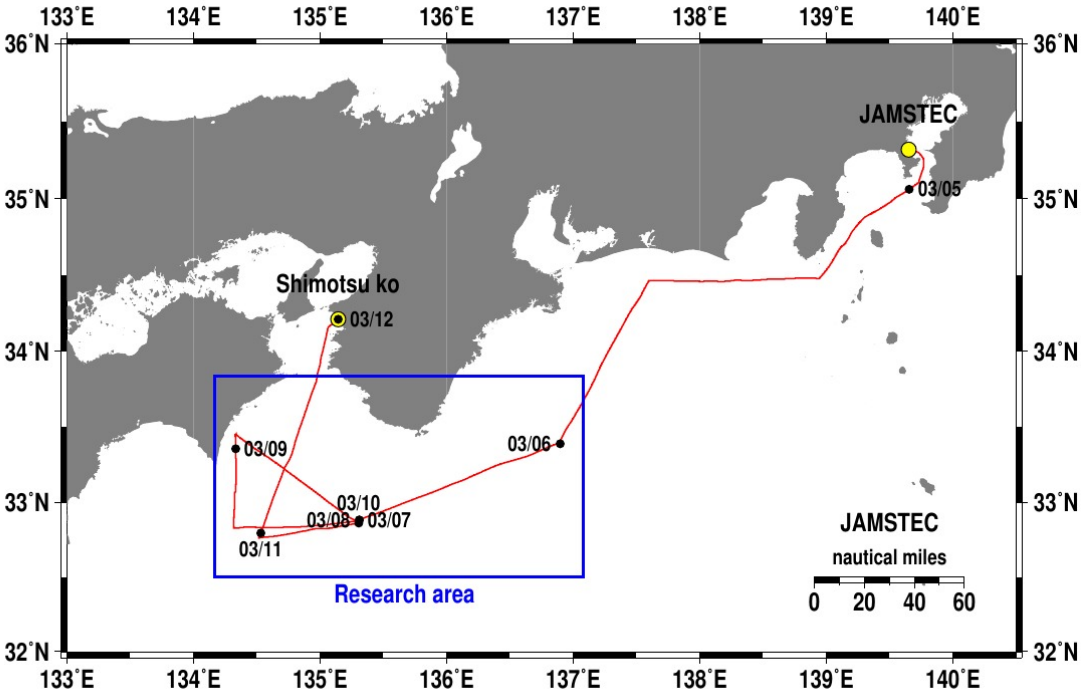
Title of proposal 2:	Real time ocean bottom crustal movement observation	
Science Party List:	Takane Hori	JAMSTEC
	Eiichiro Araki	JAMSTEC
	Takashi Yokobiki	JAMSTEC
	Hiroyuki Matsumoto	JAMSTEC
	Shuhei Nishida	JAMSTEC
	Yuya Machida	JAMSTEC
	Kentaro Imai	JAMSTEC
	Kentaro Sueki	JAMSTEC
	Hiroki Horikawa	JAMSTEC
	Shuichi Kodaira	JAMSTEC

3. Activity and Results

- Maintenance of DONET
  - In observatory 2F-23 of DONET2, the ground motion sensor system installation hole was cleaned up.
  - In observatory 2F-23 of DONET2, the ground motion sensor system and pressure sensor system were installed and connected to the DONET2 system to confirm the startup.
  - A survey of the location of the DONET2 backbone cable was conducted in the DONET2F area to confirm the drilling candidate point and its location relationship.
  - In observatory 2G-26 of DONET, the ground motion sensor system was backfilled with sand.
- Real time ocean bottom crustal movement observation
  - A 10 km fiber optics cable for DAS observation was connected and laid at the seafloor station off Hatsushima Island in Sagami Bay.
  - The mortar samples which were set in 2021 were recovered from the crustal deformation station 1B-S1.
  - The self-floating thermometer installed on October 28, 2022 was recovered.
  - In-situ calibration of DONET bottom pressure sensor was performed at DONET observatory 1B-5, 2C-10, and 2C-11, and fly-by calibration was performed at DONET in 2C-10.

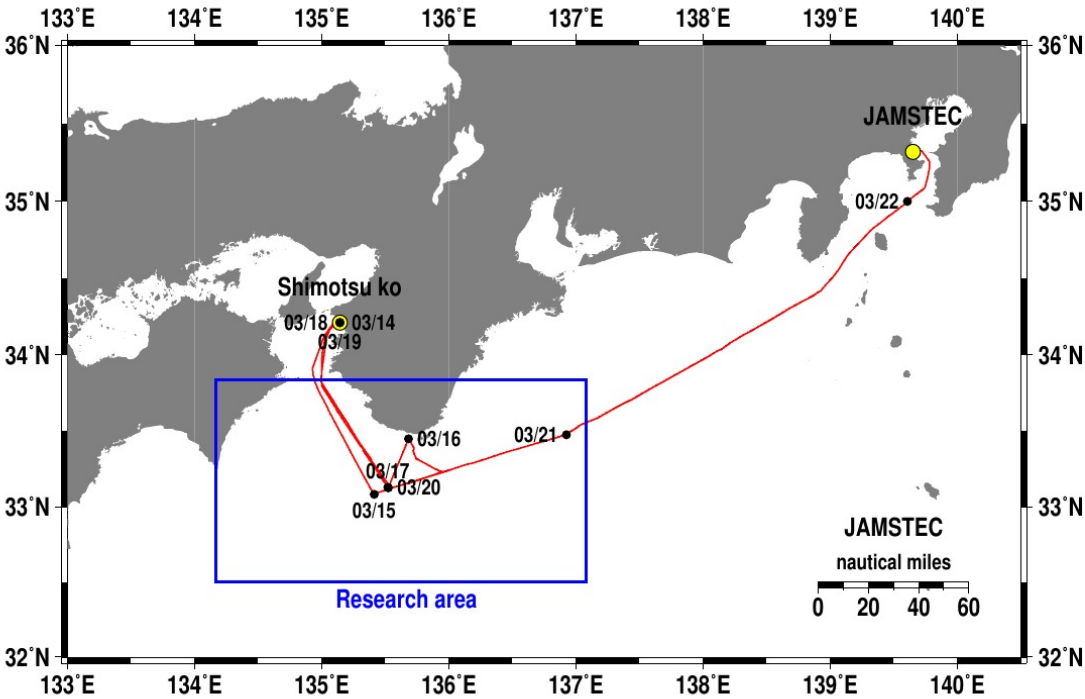


KS-23-J03C/J04 Leg2 R/V SHINSEI MARU Ship Track 2023/03/05 – 03/12



GMT 2023 Mar 21 18:10:06 DONET Cruise. 2023/03/05_JAMSTEC–Yokosuka – Shimotsu ko, Wakayama_03/12. Mercator Projection. Data source=SOJ

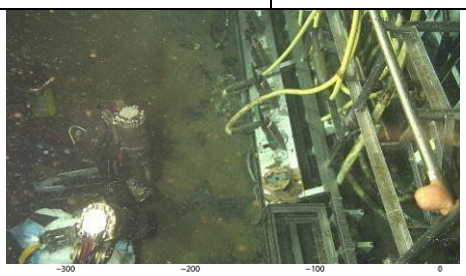
KS-23-J03C/J04 Leg3 R/V SHINSEI MARU Ship Track 2023/03/14–03/22

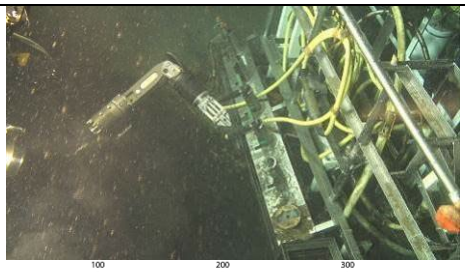


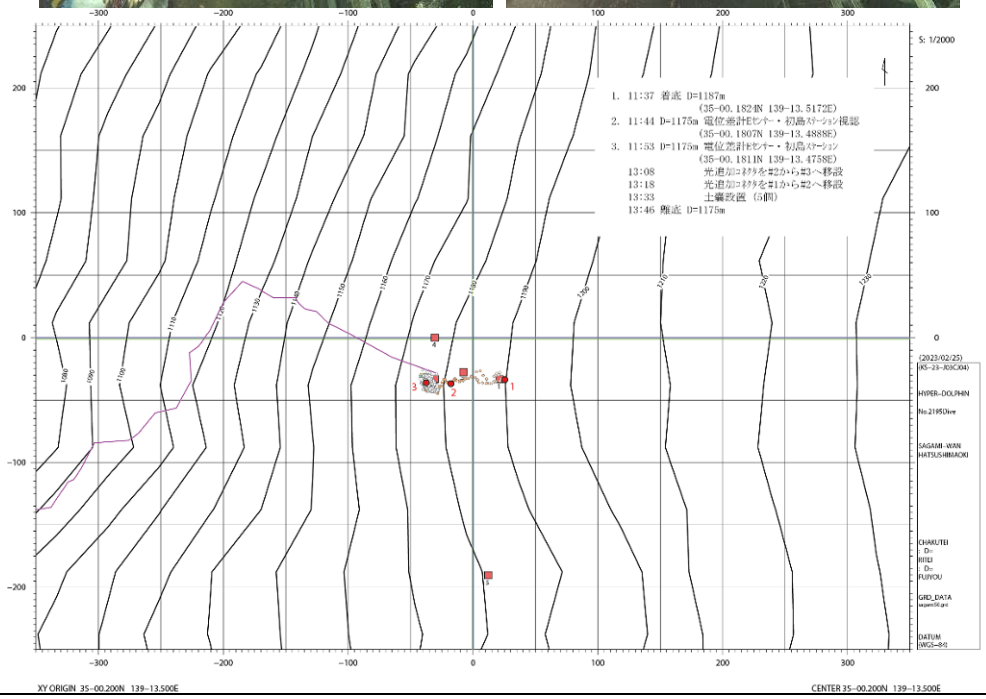
GMT 2023 Mar 22 18:16:54 DONET Cruise. 2023/03/14_Shimotsu ko, Wakayama – JAMSTEC–Yokosuka_03/22. Mercator Projection. Data source=SOJ

4. Work Summary

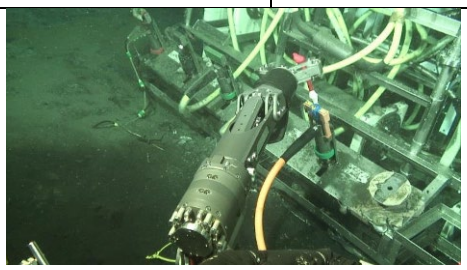
No.	Date Dive Num.	Start Time End Time	Site	Latitude	Longitude	Depth
1	2022/02/25	11:37	Sagami Bay	35:00.1824	139:13.5172	1,187
	HPD2187	13:46		35:00.1811	139:13.4758	1,175
	Work Summary		To connect the cable for DAS to the port of Optic4, the loopback cable is switched from 3-4 to 2-3.			

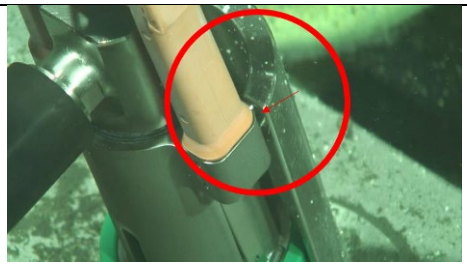


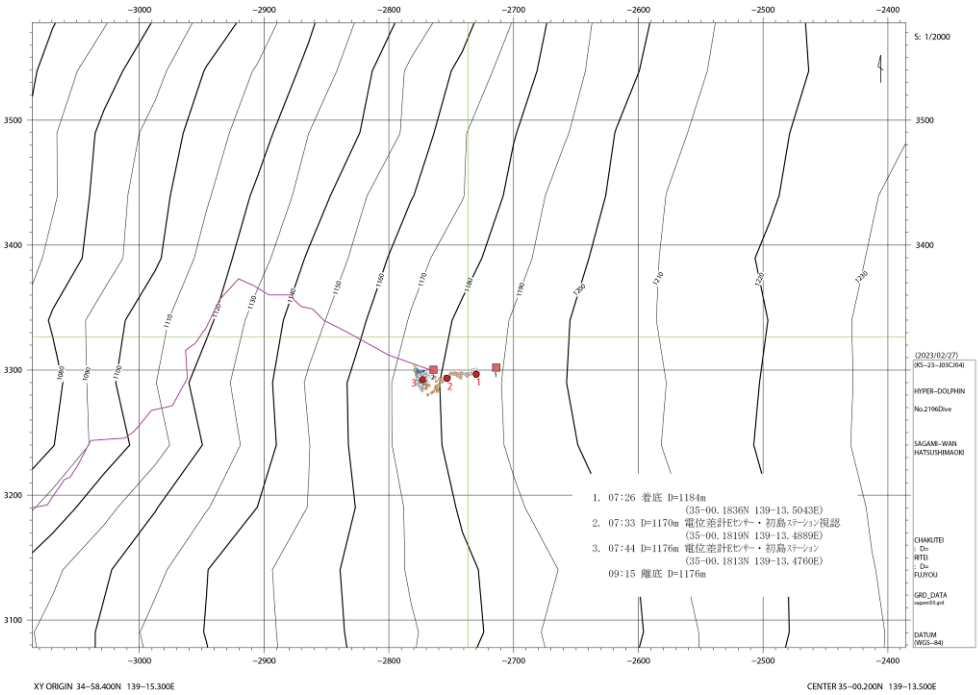




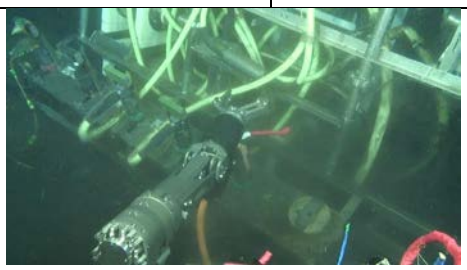
No.	Date Dive Num.	Start Time End Time	Site	Latitude	Longitude	Depth
2	2023/02/27	07:26	Sagami Bay	35:00.1836	139:13.5043	1,184
	HPD2196	09:15		35:00.1813	139:13.4760	1,176
	Work Summary		The work was aborted because the DAS cable connector could not be inserted into the underwater station.			

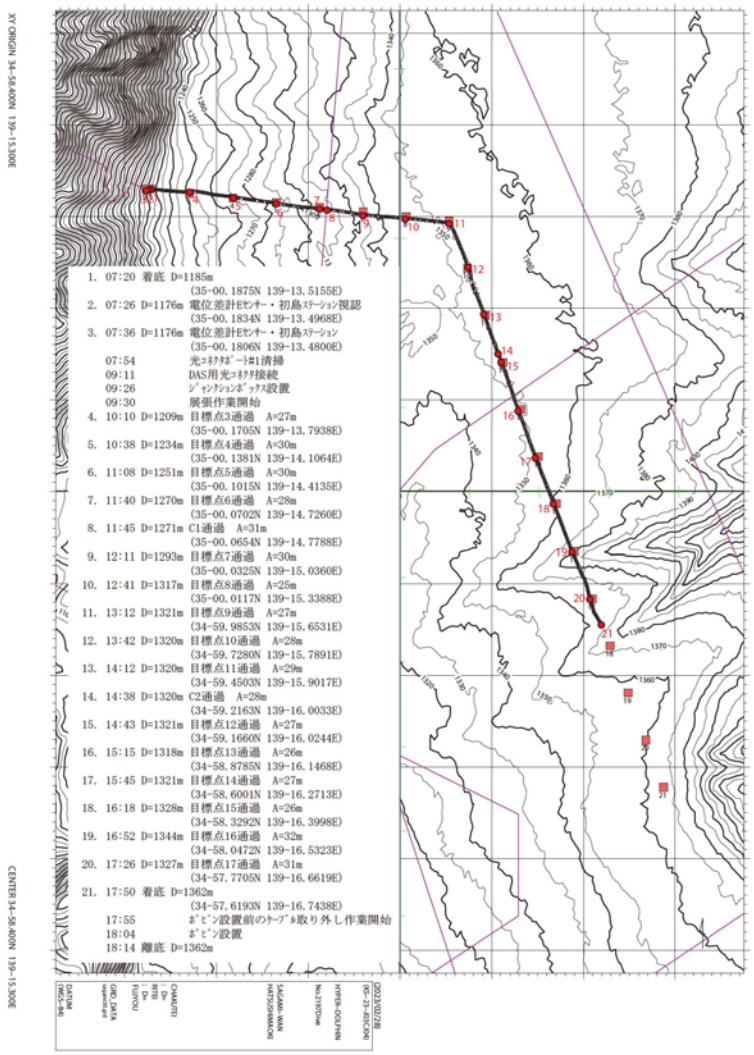




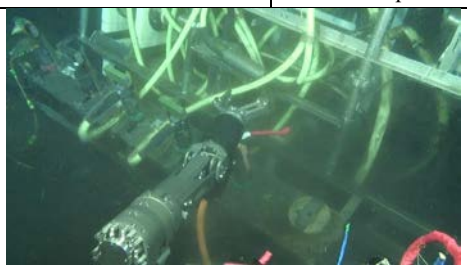


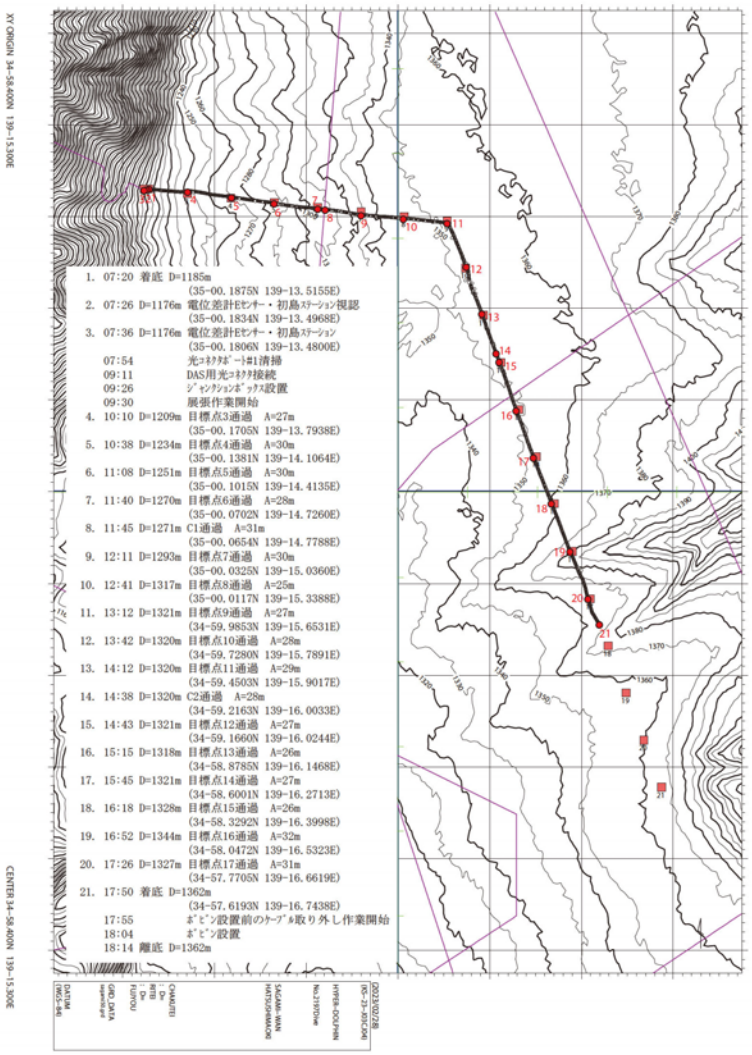
No.	Date Dive Num.	Start Time End Time	Site	Latitude	Longitude	Depth
3	2023/02/28	07:20	Sagami Bay	35:00.1875	139:13.5155	1,185
	HPD2197	18:14		34:57.6193	139:16.7438	1,362
	Work Summary		The interference of the connectors was eliminated, 10 km of cable for DAS was connected to the station, and the cable was laid.			



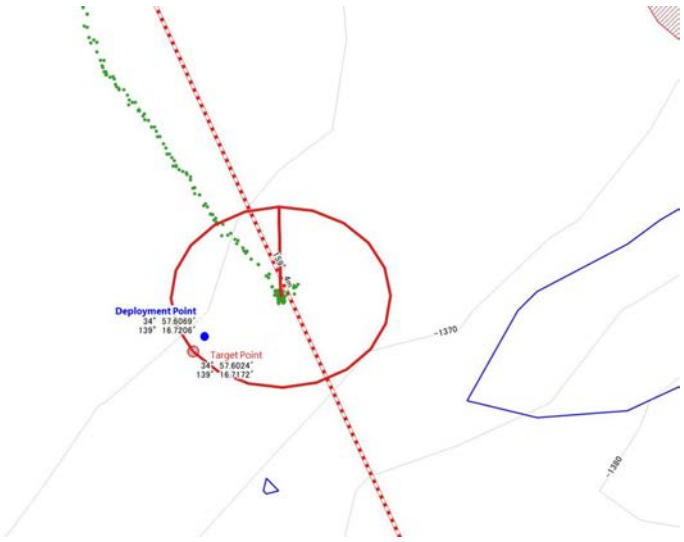


No.	Date Dive Num.	Start Time End Time	Site	Latitude	Longitude	Depth
4	2023/02/28	07:20	Sagami Bay	35:00.1875	139:13.5155	1,185
	HPD2197	18:14		34:57.6193	139:16.7438	1,362
	Work Summary		Underwater thermometer was put near the 63km point of submarine cable earthquake observatory off Muroto			

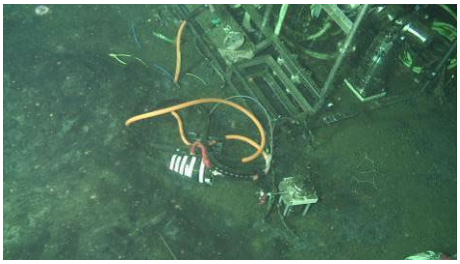


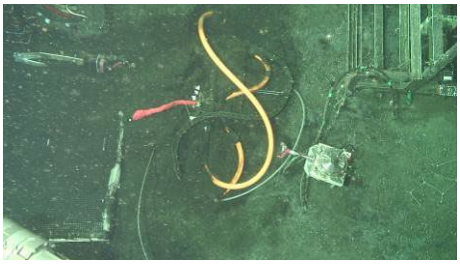


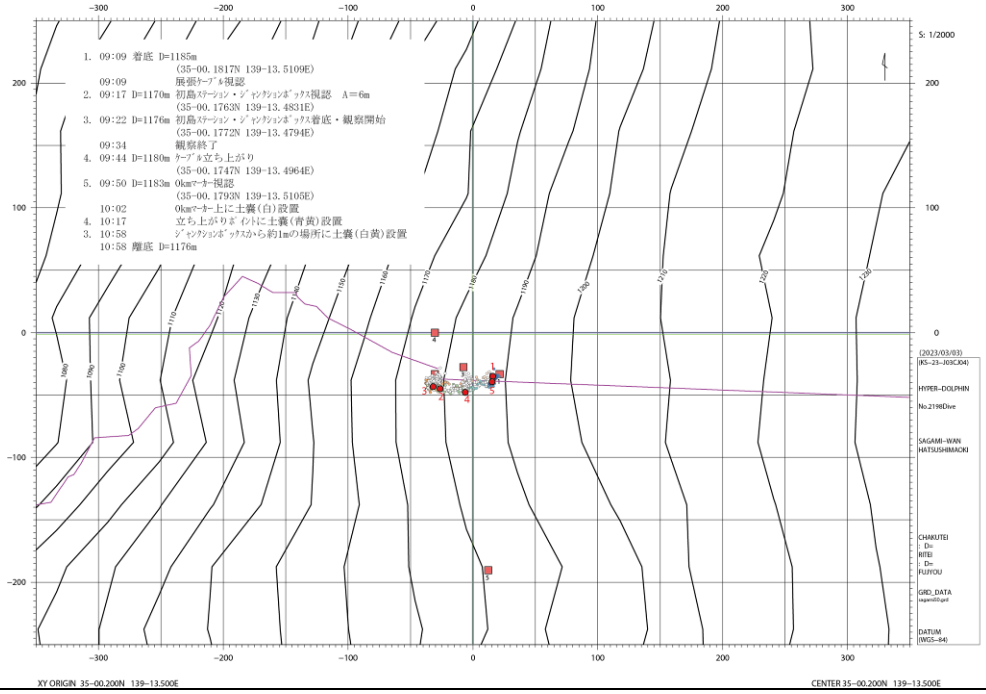
No.	Date Dive Num.	Start Time End Time	Site	Latitude	Longitude	Depth
5	2023/03/01	13:36	Sagami Bay	34:57.5994	139:16.7075	1,362
	-	14:45		34:57.6144	139:16.7065	1,362
	Work Summary		Materials (sandbags, plate weights) for cable anchoring for DAS were placed on the seafloor.			



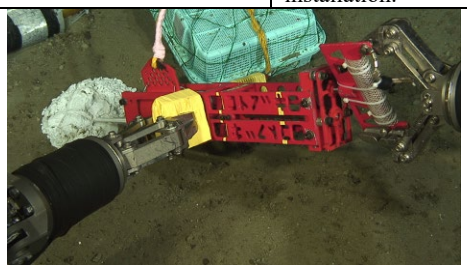
No.	Date Dive Num.	Start Time End Time	Site	Latitude	Longitude	Depth
6	2023/03/03	09:09	Sagami Bay	35:00.1817	139:13.5109	1,185
	HPD2198	10:58		35:00.1793	139:13.5105	1,176
	Work Summary		The cable installation status on the station side was checked and the installation condition of the junction box was improved.			

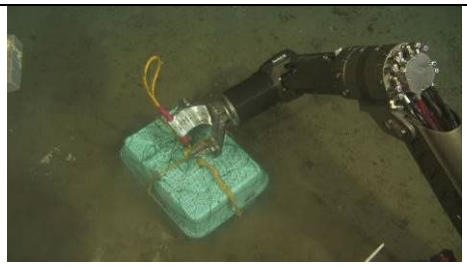


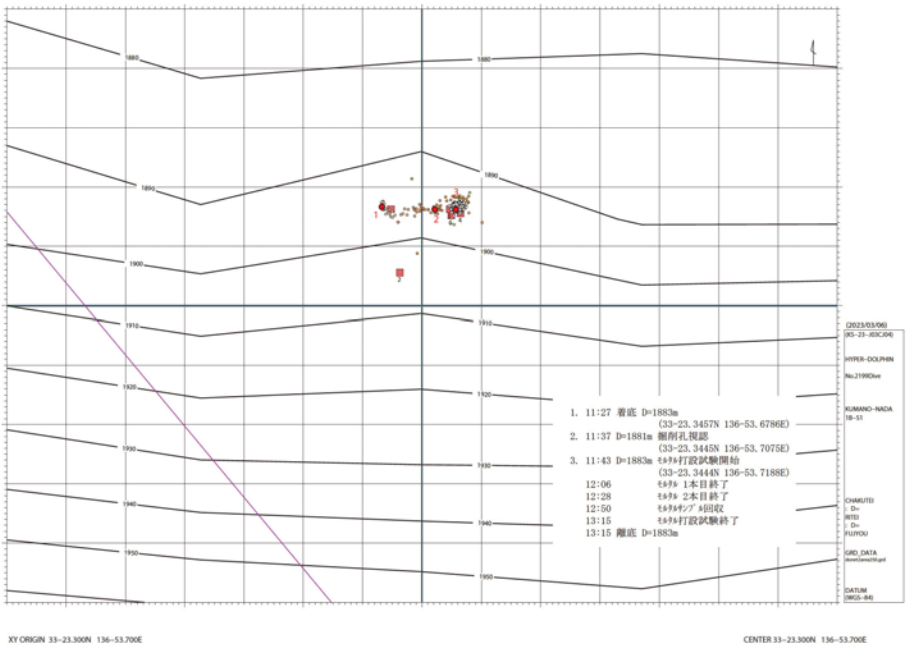




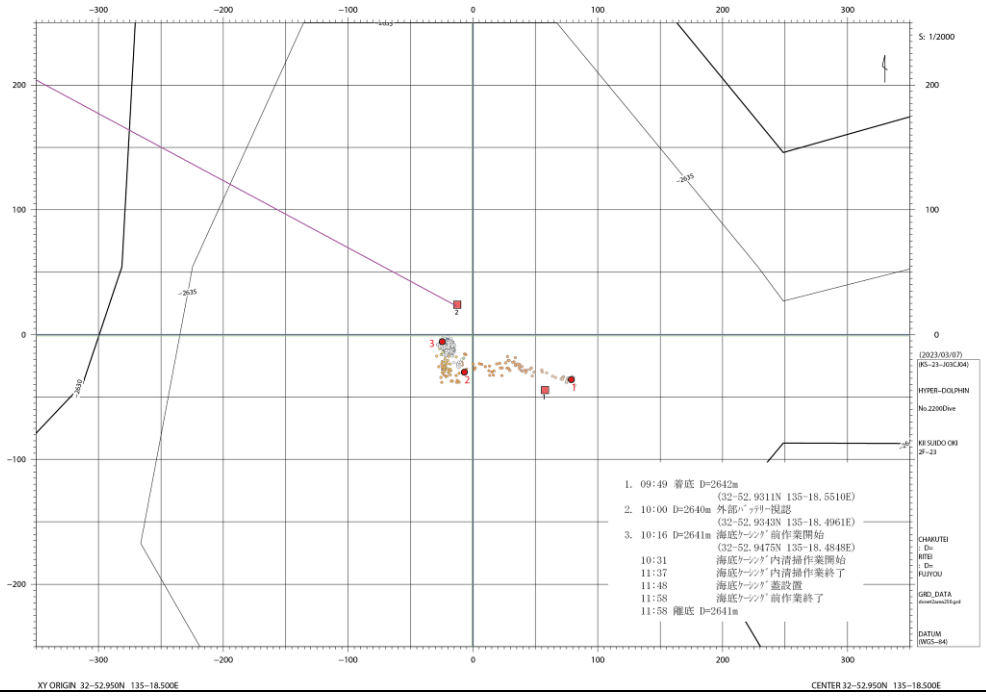
No.	Date Dive Num.	Start Time End Time	Site	Latitude	Longitude	Depth
7	2023/03/06	11:27	1B-S1	33:23.3457	136:53.6786	1,883
	HPD2199	13:15		33:23.3444	136:53.7188	1,883
	Work Summary		A two-component mix mortar was tested for placement. Mortar samples were collected after approximately two years of installation.			



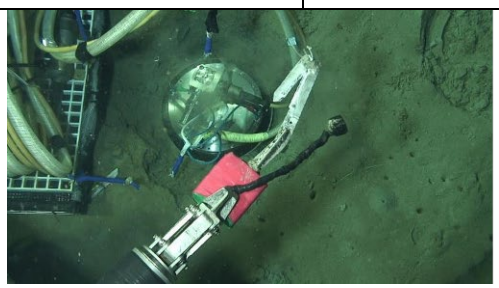


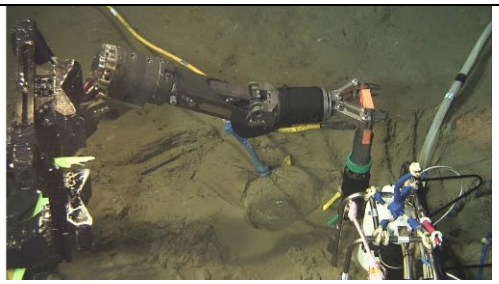


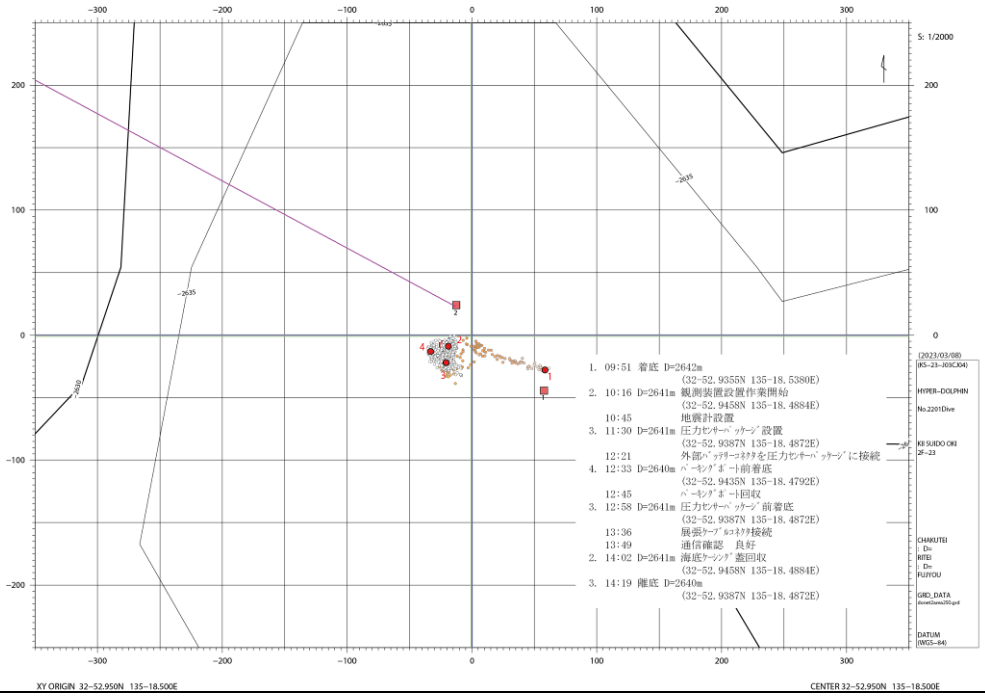
No.	Date Dive Num.	Start Time End Time	Site	Latitude	Longitude	Depth
8	2023/03/07	09:49	2F-23	32:52.9311	135:18.5510	2,642
	HPD2200	11:58		32:52.9475	135:18.4848	2,641
	Work Summary		Sand in the casing of 2F-23 was removed.			



No.	Date Dive Num.	Start Time End Time	Site	Latitude	Longitude	Depth
9	2023/03/08	09:51	2F-23	32:52.9355	135:18.5380	2,642
	HPD2201	14:19		32:52.9387	135:18.4872	2,640
	Work Summary		Sand in the casing of 2F-23 was removed.			







No.	Date Dive Num.	Start Time End Time	Site	Latitude	Longitude	Depth
10	2023/03/09	14:55	M03-2	32:49.7575	134:19.4317	1,698
	-	15:45		32:49.7151	134:19.3358	1,698
	Work Summary		The self-floating thermometer installed on October 28, 2022 was recovered.			

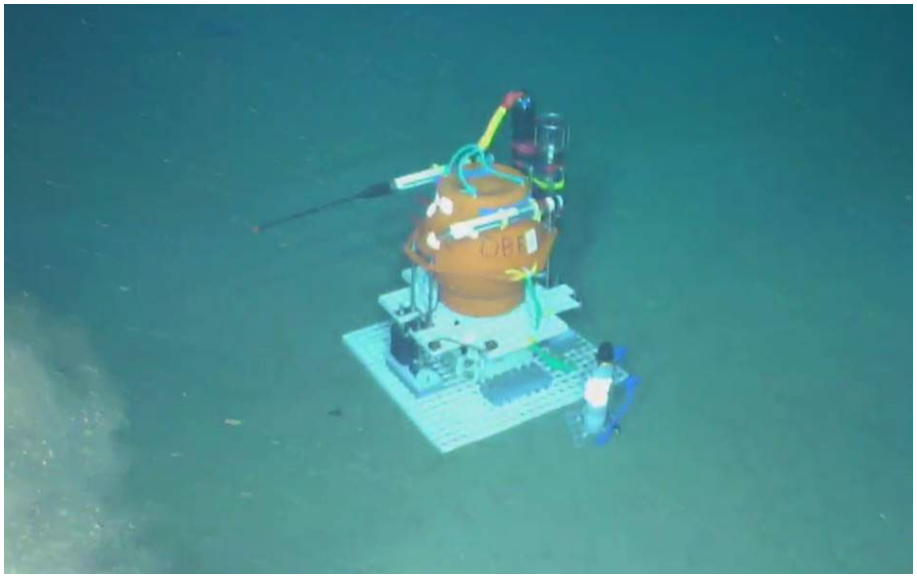
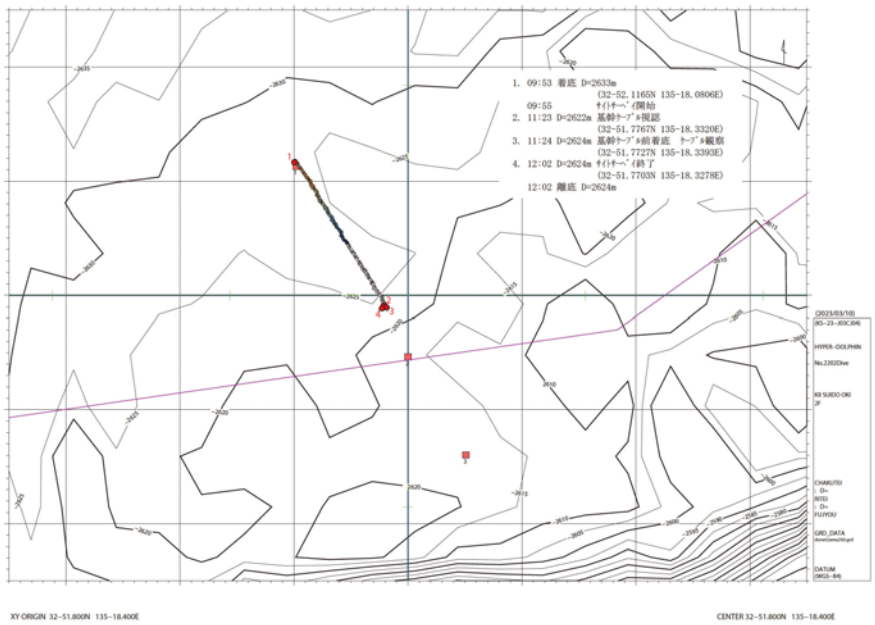
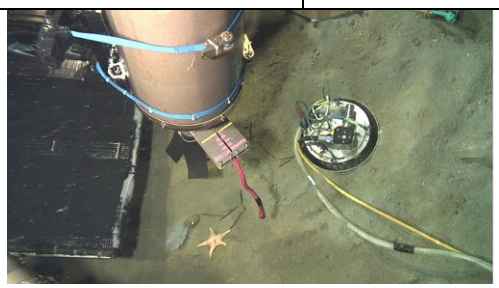


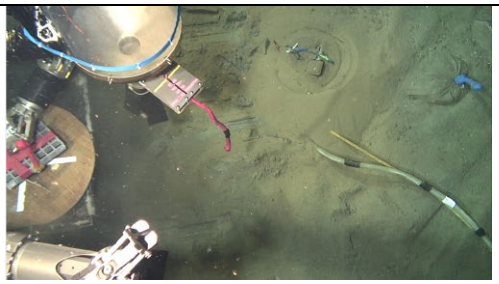
Photo shows installation

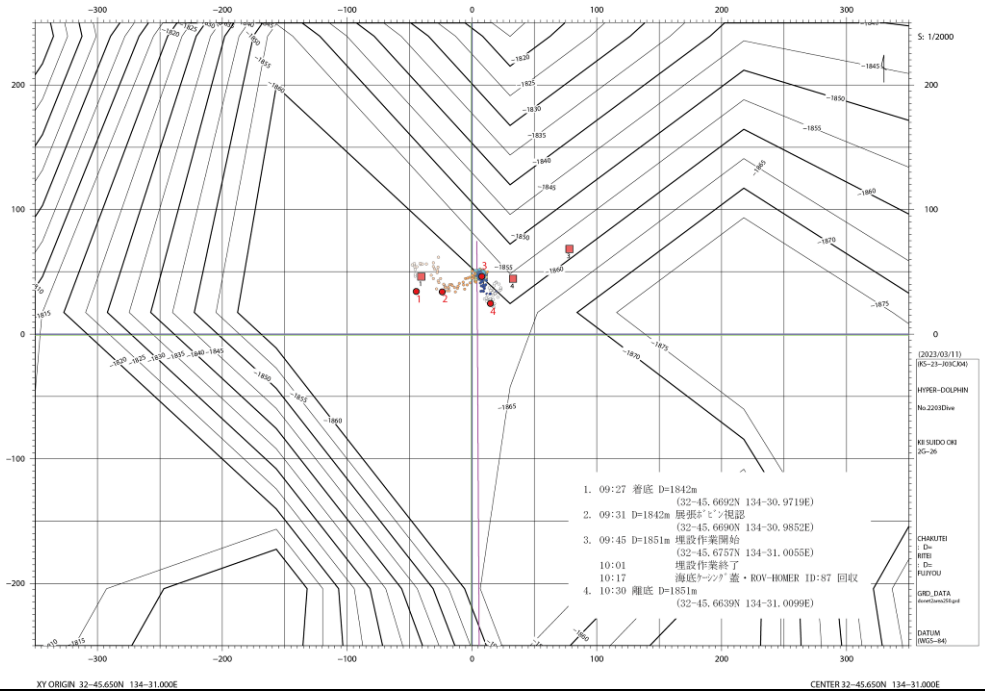
No.	Date Dive Num.	Start Time End Time	Site	Latitude	Longitude	Depth
11	2023/03/10	09:53	DN2F-1	32:52.1165	135:18.0806	2,633
	HPD2202	12:02		32:51.7700	135:18.3278	2,624
	Work Summary		The location of the DONET2 backbone cable was identified by a visual survey of the southern part of the 2F area.			



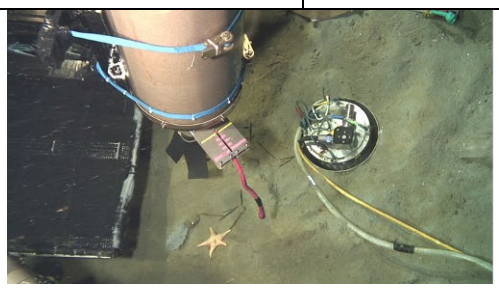
No.	Date Dive Num.	Start Time End Time	Site	Latitude	Longitude	Depth
12	2023/03/11	09:27	2G-26	32:45.6692	134:30.9719	1,842
	HPD2203	10:30		32:45.6639	134:31.0099	1,851
	Work Summary		The 2G-26 ground motion sensor system was backfilled with sand.			

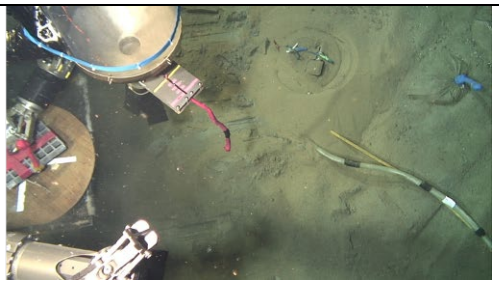


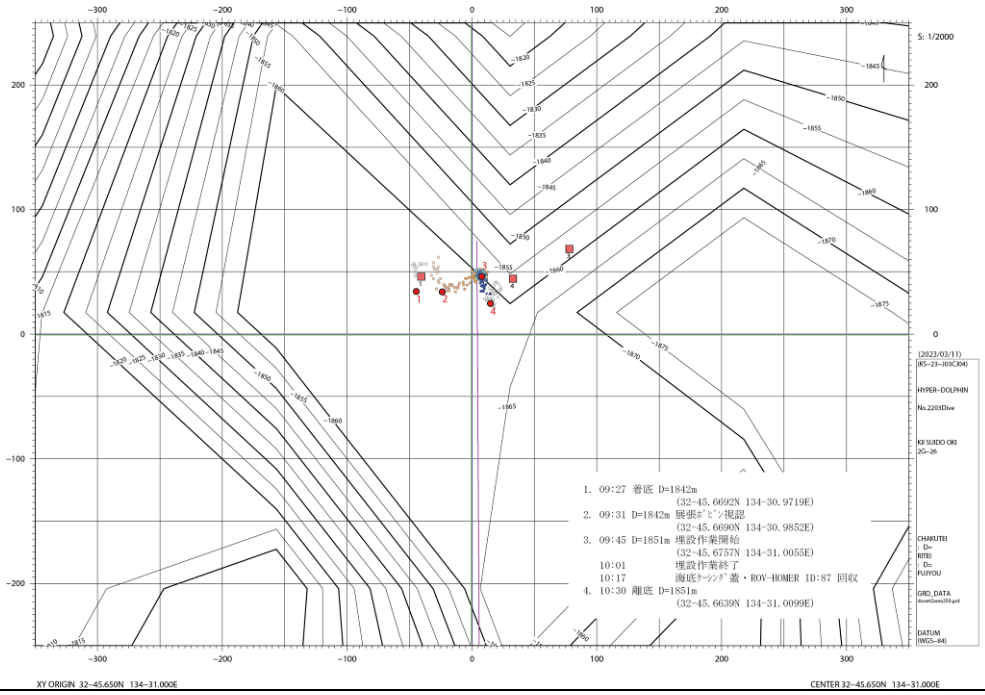




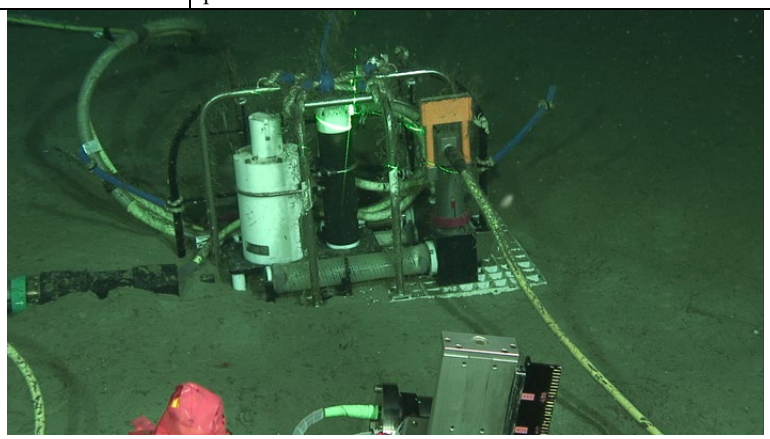
No.	Date Dive Num.	Start Time End Time	Site	Latitude	Longitude	Depth
13	2023/03/11	09:27	2G-26	32:45.6692	134:30.9719	1,842
	HPD2203	10:30		32:45.6639	134:31.0099	1,851
	Work Summary		The 2G-26 ground motion sensor system was backfilled with sand.			

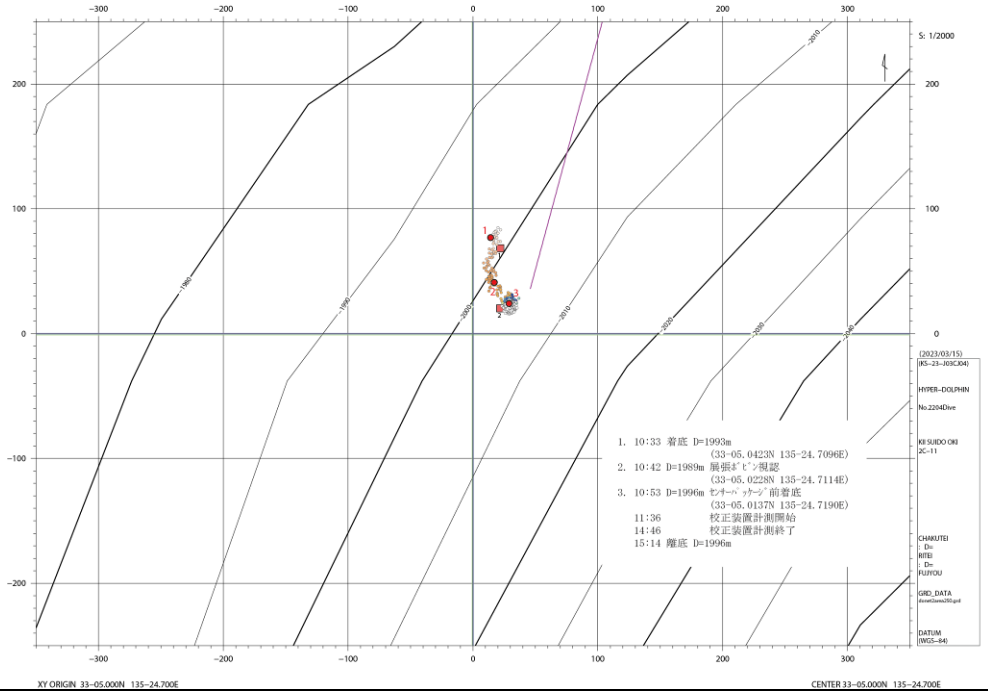




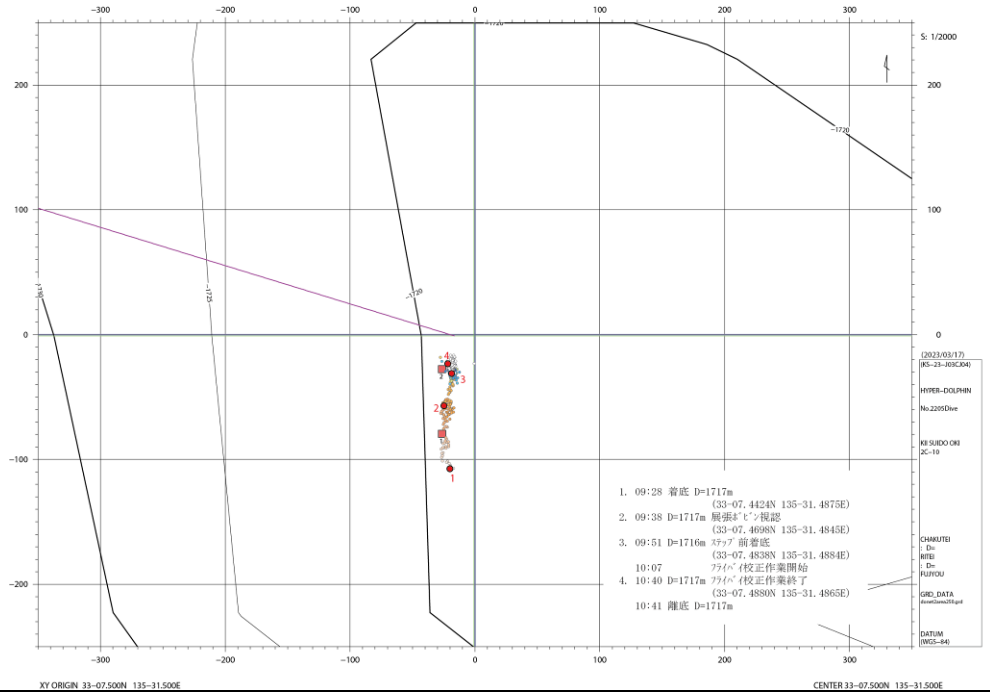


No.	Date Dive Num.	Start Time End Time	Site	Latitude	Longitude	Depth
14	2023/03/15	10:33	2C-11	33:05.0423	135:24.7096	1,993
	HPD2204	15:14		33:05.0137	135:24.7190	1,996
	Work Summary		In-situ calibration of the DONET bottom pressure gauge was performed at 2C-11.			

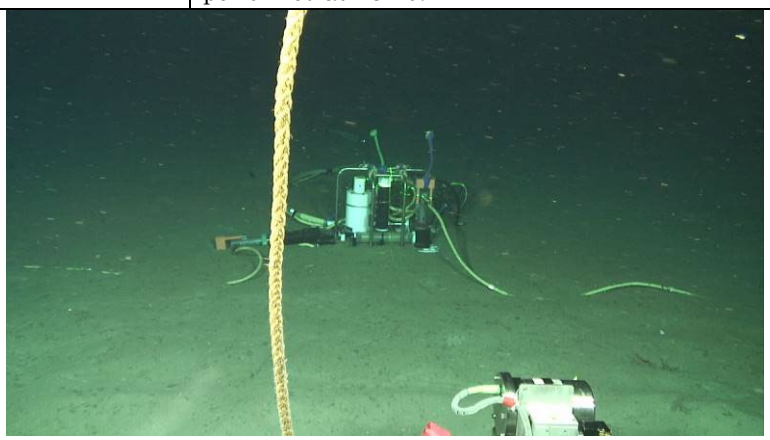


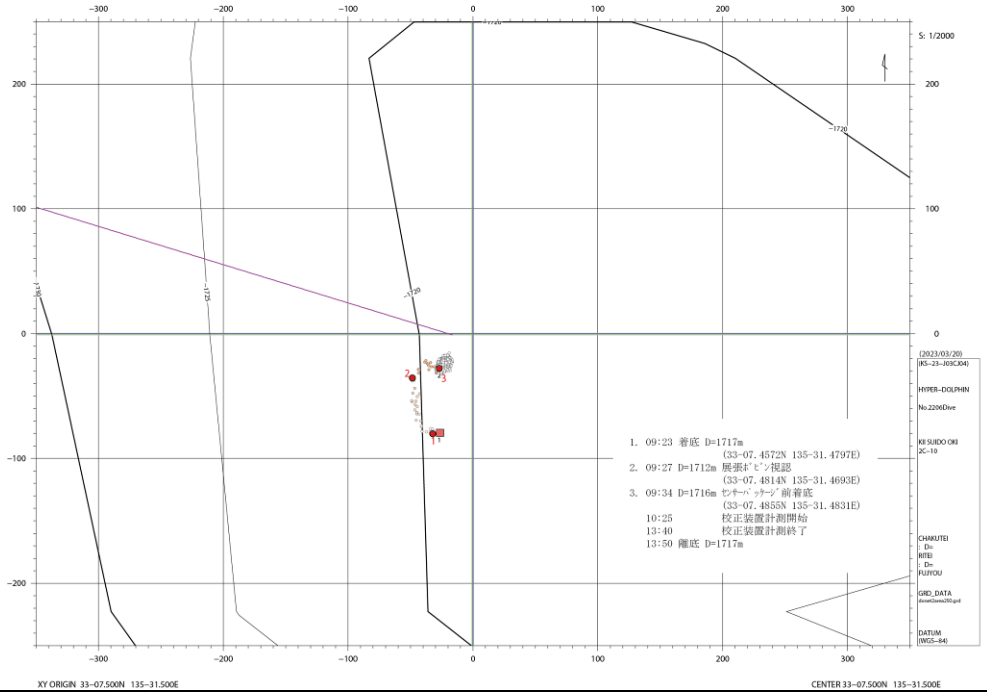


No.	Date Dive Num.	Start Time End Time	Site	Latitude	Longitude	Depth
15	2023/03/17	09:28	2C-10	33:07.4424	135:31.4875	1,717
	HPD2205	10:41		33:07.4880	135:31.4865	1,717
	Work Summary		Fly-by calibration of the DONET bottom pressure gauge was performed at 2C-10.			

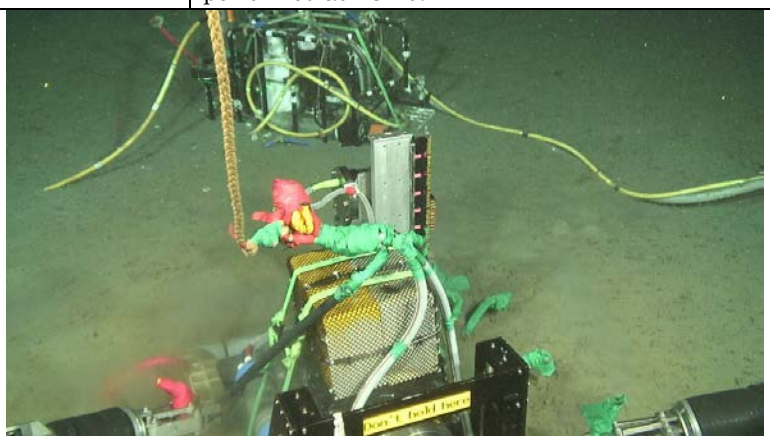


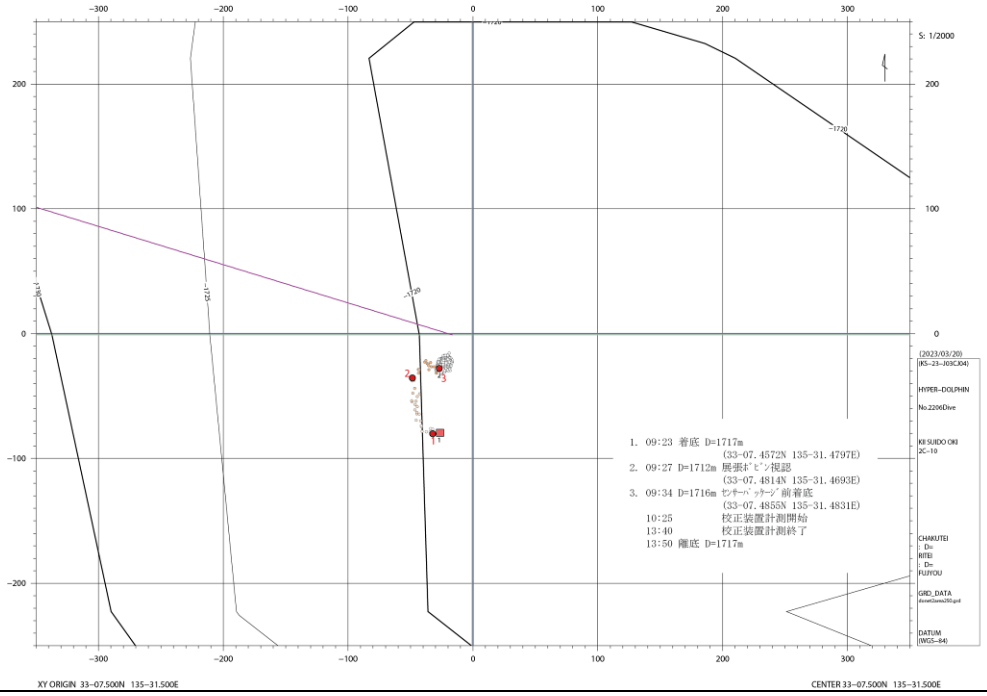
No.	Date Dive Num.	Start Time End Time	Site	Latitude	Longitude	Depth
16	2023/03/20	09:23	2C-10	33:07.4572	135:31.4797	1,717
	HPD2205	13:50		33:07.4855	135:31.4831	1,717
	Work Summary		In-situ calibration of the DONET bottom pressure gauge was performed at 2C-10.			





No.	Date Dive Num.	Start Time End Time	Site	Latitude	Longitude	Depth
17	2023/03/20	09:23	2C-10	33:07.4572	135:31.4797	1,717
	HPD2205	13:50		33:07.4855	135:31.4831	1,717
	Work Summary		In-situ calibration of the DONET bottom pressure gauge was performed at 2C-10.			





5. Notice on Using

This cruise report is a preliminary documentation as of the end of cruise.
This report is not necessarily corrected even if there is any inaccurate description (i.e. taxonomic classifications). This report is subject to be revised without notice. Some data on this report may be raw or unprocessed. If you are going to use or refer the data on this report, it is recommended to ask the Chief Scientist for latest status.
Users of information on this report are requested to submit Publication Report to JAMSTEC.

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